In re Patent Application of:
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IN THE CLAIMS:

Please cancel Claims 1 to 76.

Please add new Claims 77 to 112.

77. (new) A method for making a semiconductor device comprising:

forming a superlattice comprising a plurality of stacked groups of layers;

each group of layers of the superlattice comprising a plurality of stacked base germanium monolayers defining a base germanium portion and an energy band-modifying layer thereon;

the energy-band modifying layer comprising at least one non-semiconductor monolayer constrained within a crystal lattice of adjacent base germanium portions.

78. (new) A method according to Claim 77 wherein the superlattice has a common energy band structure therein.

79. (new) A method according to Claim 77 wherein the superlattice has a higher charge carrier mobility in at least one direction than would otherwise be present.

80. (new) A method according to Claim 79 wherein the higher charge carrier mobility results from a lower conductivity effective mass for the charge carriers in the parallel direction than would otherwise be present.

81. (new) A method according to Claim 80 wherein the lower conductivity effective mass is less than two-thirds the conductivity effective mass that would otherwise occur.

82. (new) A method according to Claim 79 wherein the charge carriers having the higher mobility comprise at least one of electrons and holes.

83. (new) A method according to Claim 77 wherein each energy band-modifying layer comprises oxygen.

84. (new) A method according to Claim 77 wherein each energy band-modifying layer is a single monolayer thick.

85. (new) A method according to Claim 77 wherein each base germanium portion is less than eight monolayers thick.

86. (new) A method according to Claim 77 wherein each base germanium portion is two to six monolayers thick.

87. (new) A method according to Claim 77 wherein the superlattice further has a substantially direct energy bandgap.

88. (new) A method according to Claim 77 wherein the superlattice further comprises a base germanium cap layer on an uppermost group of layers.

89. (new) A method according to Claim 77 wherein all of the base germanium portions are a same number of monolayers thick.

90. (new) A method according to Claim 77 wherein at least some of the base germanium portions are a different number of monolayers thick.

91. (new) A method according to Claim 77 wherein all of the base germanium portions are a different number of monolayers thick.

92. (new) A method according to Claim 77 wherein each non-semiconductor monolayer is thermally stable through deposition of a next layer.

93. (new) A method according to Claim 77 wherein each energy band-modifying layer comprises a non-semiconductor selected from the group consisting of oxygen, nitrogen, fluorine, and carbon-oxygen.

94. (new) A method according to Claim 77 further comprising forming the superlattice comprises forming the superlattice on a substrate.

95. (new) A method according to Claim 77 further comprising doping the superlattice with at least one type of conductivity dopant therein.

96. (new) A method according to Claim 77 wherein the superlattice defines a channel of a transistor.

97. (new) A method for making a semiconductor device comprising:

forming a superlattice comprising a plurality of stacked groups of layers;

each group of layers of the superlattice comprising a plurality of stacked base germanium monolayers being less than eight monolayers to define a base germanium portion, and an energy band-modifying layer thereon;

the energy-band modifying layer comprising at least one oxygen monolayer constrained within a crystal lattice of adjacent base germanium portions.

98. (new) A method according to Claim 97 wherein the superlattice has a common energy band structure therein.

99. (new) A method according to Claim 97 wherein the superlattice has a higher charge carrier mobility in at least one direction than would otherwise be present.

100. (new) A method according to Claim 99 wherein the higher charge carrier mobility results from a lower conductivity effective mass for the charge carriers in the parallel direction than would otherwise be present.

101. (new) A method according to Claim 99 wherein the charge carriers having the higher mobility comprise at

least one of electrons and holes.

102. (new) A method according to Claim 97 wherein each energy band-modifying layer is a single monolayer thick.

103. (new) A method according to Claim 97 wherein each base germanium portion is less than eight monolayers thick.

104. (new) A method according to Claim 97 wherein each base germanium portion is two to six monolayers thick.

105. (new) A method according to Claim 97 wherein the superlattice further has a substantially direct energy bandgap.

106. (new) A method according to Claim 97 wherein the superlattice further comprises a base germanium cap layer on an uppermost group of layers.

107. (new) A method according to Claim 97 wherein all of the base germanium portions are a same number of monolayers thick.

108. (new) A method according to Claim 97 wherein at least some of the base germanium portions are a different number of monolayers thick.

109. (new) A method according to Claim 97 wherein

all of the base germanium portions are a different number of monolayers thick.

110. (new) A method according to Claim 97 further comprising forming the superlattice comprises forming the superlattice on a substrate.

111. (new) A method according to Claim 97 further comprising doping the superlattice with at least one type of conductivity dopant therein.

112. (new) A method according to Claim 97 wherein the superlattice defines a channel of a transistor.